Remarks

Claims 20-39 are pending. Favorable reconsideration is respectfully requested.

Applicants note that amendments to the specification, submitted via the Preliminary Amendment dated September 26, 2005, have not yet been incorporated in the published application as published dated November 23, 2006. Applicants respectfully request the application be republished to that effect.

Remarks Directed to the Claim Objections

Various claim objections are stated on pages 2-4 of the Office Action. Without waiver or acquiescence to the Examiner's objections, Applicants have amended pending claims 20-36 to provide greater clarity. In addition, claim 39 is newly added. Support for the claim amendments is found, *inter alia*, at [0036], [0044], and [0045] of the published application and in the claims originally filed. No new matter is introduced by these claim amendments. Reconsideration and withdrawal of these objections is solicited.

Remarks Directed to Claim Rejections under 35 U.S.C. § 112

As stated hereinabove, the pending claims have been amended to provide greater clarity. The pending claims in current form are believed to have been provided with the requisite clarity and definiteness.

In particular, the Examiner has rejected claim 20, stating the phrases "optionally modified starch combined with at least one polymer additive" and "starch molding composition or molding prepared therefrom" as being unclear. Without waiver or acquiescence to the Examiner's rejection, Applicants have amended claim 20 to recite a starch molding composition comprising an optionally modified starch and redispersible powder of at least one polymer, the

polymer containing one or more comonomer units . . . [and] at least one functional comonomer." The Examiner has rejected claim 30 as being unclear. Applicants have amended claim 30 to recite the starch molding composition of claim 20 used as an adhesive. Claims 21 and 23 have also been amended to correct antecedent basis and now properly depend from independent claim 20. In addition, the features as recited in claim 22 have been rephrased, as suggested by the Examiner, to now read "wherein the at least one functional comonomer unit includes N-alkylol-functional comonomer units having a C_1 to C_4 alkylol radical." The Examiner has further rejected claim 32 as lacking proper antecedent basis. Applicants have amended claim 32 to recite that the starch molding of claim 31 further comprises a biodegradable polyester as a binder.

In light of these claim amendments, reconsideration and withdrawal of these rejections is respectfully solicited.

Remarks Directed to Claim Rejections
under 35 U.S.C. § 102(b)

I) over Ritter et al., USPN 5,439,953, hereinafter *Ritter*

As stated on page 6 of the Office Action, claims 20-21, 24-25, 27, 29, 31 and 34-37 stand rejected under 35 U.S.C. § 102(b) over *Ritter*. For at least the reasons set forth below, Applicants respectfully traverse this rejection.

Anticipation has been held to require strict identity. The reference must expressly or implicitly teach every claimed limitation as recited in the subject claim(s). The fact that a certain result or characteristic may occur or may be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9F. 3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993).

Independent claim 20 recites a starch molding composition comprising optionally modified starch combined with redispersible powder of at least one polymer.

Ritter is directed to starch digestion effected by the concomitant use of polymer in the aqueous phase (Abstract, col. 3, lines 31-39). The polymer is employed in the form of aqueous dispersions containing the synthetic polymer material in an aqueous phase (col. 4, lines 1-5). The aqueous polymer emulsion has a water content of from 40 to 65% by weight (col. 6, lines 1-6). The starch digestion is carried out at temperatures from 100°C to 170°C (col. 6, lines 56-59). Therefore, *Ritter* does not even teach the use of a polymer in powder form much less the use of the polymer in redispersible powder form as required in claim 20.

Since *Ritter* fails to teach or suggest with "strict identity" the subject matter of claim 20, claim 20 and all the claims dependent therefrom are submitted to be patentable. Reconsideration and withdrawal of this rejection is respectfully solicited.

II) over Wendel et al., USPN 5,358,998, hereinafter *Wendel*

As stated on pages 6-7 of the Office Action, claims 20, 22-23, 26-27 and 29-30 are rejected under 35 U.S.C. § 102(b) over *Wendel*. Applicants respectfully traverse these rejections for the reasons set forth below.

As previously stated, independent claim 20 recites a starch molding composition comprising optionally modified starch and redispersible polymer powder.

In contrast, *Wendel* is directed to an aqueous polymer dispersion which employs sugared starch as surfactant to stabilize the aqueous dispersion (col. 1, lines 13-23). The resultant aqueous polymer dispersion is suitable for use as adhesives, as binders for carpet backings, and as binders for paper coatings (col. 8, lines 26-37). The resultant aqueous polymer dispersion is provided with increased flowability and a long shelf life (col. 8, lines 65-68). The aqueous nature of *Wendel's* polymer dispersion is further supported in his disclosure at lines 29-30 in col. 9 wherein the dispersion is stated to have solids content of 40% to 60% by weight and hence a water content of 60% to 40% by weight. It should be particularly noted that to form the aqueous polymer dispersion, *Wendel* uses primarily water or a mixture of water and water-miscible liquids

such as methanol such that emulsion polymerization of the comonomers can be carried out (col. 7, lines 3-6). For instance, *Wendel's* dispersion in Example 1 contains 513g water out of a total dispersion weight of 732g, or a weight percentage of 70% of water (Col. 12, lines 37-42), 65% of water in preparations D_{11}-D_{13} (col. 13, lines 23-30), and 51% of water in preparation D_{14} (col. 14, lines 13-18). Therefore, *Wendel* does not teach the use of any redispersible polymer powder as required in claim 20.

Since *Wendel* fails to teach or suggest with "strict identity" the subject matter of claim 20, claim 20 and all the claims dependent therefrom are submitted to be patentable. Reconsideration and withdrawal of these rejections is respectfully solicited.

III) over Hashemzadeh et al. (US2002/0135086A1, hereinafter *Hashemzadeh*)

As stated on pages 7-9 of the Office Action, claims 20-21, 24-27, 29-31, 33 and 36-38 stand rejected under 35 U.S.C. § 102(b) over *Hashemzadeh*. Applicants respectfully traverse these rejections for at least the reasons set forth below.

As stated previously, independent claim 20 recites a starch molding composition including a redispersible polymer powder and optionally modified starch, wherein the redispersible polymer powder is provided in an amount of from 5% to 60% by weight based on the total weight of the starch, or a polymer/starch weight ratio of 5% to 60%. Molding articles derived from the claimed starch molding compositions are provided with improved water resistance and increased article strength ([0049] and [0065] of the published application).

In contrast, *Hashemzadeh* is directed to a binder composition including one or more polymers and a filler such as starch in an amount of 4% to 25% by weight based on the total weight of the polymers and the starch, as acknowledged by the Examiner on page 8 of the Office Action. Please see also col. 1 at lines 5-24 of *Hashemzadeh*. *Hashemzadeh* teaches a starch/polymer weight ratio of 4/96 to 25/75, or alternatively, a polymer/starch weight ratio of

75/25 (or 300%) to 96/4 (2400%). Therefore, *Hashemzadeh* teaches a polymer/starch weight ratio of at least 300%, a value drastically different from the polymer/starch weight ratio of 5% to 60% as recited in claim 20.

As *Hashemzadeh* fails to teach or suggest the aforementioned claimed limitation, the independent claim 20 and all the claims dependent therefrom are submitted to be patentable over the cited art. Reconsideration and withdrawal of these rejections is respectfully solicited.

Remarks Directed to Claim Rejections
under 35 U.S.C. § 103(a)

I) over *Ritter* and Famili et al., USPN 5,362,778, hereinafter *Famili*

As stated on pages 9-10 of the Office Action, claim 28 is rejected under 35 U.S.C. § 103(a) over *Ritter* and *Famili*. In rejecting claim 28, the Examiner opines that *Ritter* is silent with respect to the properties of polyvinyl alcohol but cites support to *Famili* for teaching of the features recited in claim 28.

Claim 28 recites the starch molding composition of claim 20 wherein the protective colloids include polyvinyl alcohols having a degree of hydrolysis of from 85 to 94 mol% and a Höppler viscosity, in 4% strength aqueous solution, of from 3 to 15 mPa·s at 20°C according to DIN 53015. The polyvinyl alcohol is used as a protective colloid to modify certain properties of the starch molding. Please see for instance [0031] of the published application. In particular, the polyvinyl alcohol is so selected having features as recited in claim 28 to attain requisite hydrophobicity ([0033] of the published application).

In contrast, *Famili* is directed to a composition of polyvinyl alcohol itself and uses its own property modifier such as a plasticizer to improve the flow characteristics of the polyvinyl alcohol (col. 3, lines 40-41). *Famili* teaches making an extrudable polyvinyl alcohol composition useful for packaging and molding applications through the addition of thermoplastic modified

starch (Abstract). *Famili* teaches that starch modified polyvinyl alcohol is thermally stable and can withstand subsequent melt processing in conventional thermoplastic processing equipment. In particular, *Famili* is completely silent with respect to the term "hydrophobic" or "hydrophobicity."

Claim 28 is submitted to be patentable for its dependency from the independent claim 20 which is believed to be allowable over the cited art and further due to the additional features claim 28 recites. As stated above, *Ritter* does not teach or suggest any choice of polyvinyl alcohol having the characteristics recited in claim 28, or with the requisite hydrophobicity, as admitted by the Examiner, but is also neither taught nor suggested in *Famili*. Reconsideration and withdrawal of the rejection to claim 28 over 35 U.S.C. 103(a) over *Ritter* and *Famili* is solicited.

II) over *Hasemazadeh* and Miyamoto et al, JP2002-020601, hereinafter *Miyamoto*

On page 10 of the Office Action, the Examiner opines that *Hashemzadeh* is silent with respect to biodegradable polyester but cites *Miyamoto* for teaching of the biodegradable polyester as recited in claim 32.

Claim 32 is submitted to be patentable due to its dependency from the independent claim 20 which is believed to be allowable as stated previously. For instance, *Hasemazadeh* fails to teach or suggest the claimed limitation of the starch being present in an amount greater than 25% and less than 2000% as recited in claim 20. The Examiner has not indicated how *Miyamoto* cures this deficient teaching of *Miyamoto*. Reconsideration and withdrawal of the rejection to claim 32 over *Hashemzadeh* and *Miyamoto* is respectfully solicited.

Remarks Directed to the Newly Added Claim 39

Claim 39 recites a starch molded article comprising optionally modified starch combined with redispersible powder of at least one polymer stabilized with protective colloid(s) and/or emulsifier(s), wherein the polymer contains at least one functional N-methylol comonomer,

and wherein the redispersible polymer powder is provided in an amount of from 5% to 60% by weight based on the total weight of the starch.

As stated hereinabove, the cited art fails to teach or suggest at least one of the limitations recited in claim 39. Moreover, the claimed starch molded article can be in the form of pressed sheets having moisture content less than 1% by weight ([0045]) and can withstand certain fracture test conditions ([0050]). The claimed starch molded article can also be in the form of shaped pellets and granules dependent upon particular needs of an application ([0055]) that can withstand water-induced disintegration when submerged in water ([0057]). None of these features are taught or suggested in the cited art. Allowability of claim 39 is solicited.

Conclusion

Applicants submit that the claims are now in condition for allowance, and respectfully request a Notice to that effect. If the Examiner believes that further discussion will advance the prosecution of the application, the Examiner is highly encouraged to telephone Applicants' attorney at the number given below.

Please charge any fees or credit any overpayments as a result of the filing of this paper to our Deposit Account No. 02-3978.

Respectfully submitted,

HENK MOSSEVELD et al.

By /Junqi Hang/
Junqi Hang
Reg. No. 54,615
Attorney for Applicant

Date: May 26, 2009

BROOKS KUSHMAN P.C.
1000 Town Center, 22nd Floor
Southfield, MI 48075-1238
Phone: 248-358-4400
Fax: 248-358-3351